SUMMARY

S.1 Proposed Action

This Final Environmental Impact Statement (FEIS) documents the development and evaluation of alternatives to improve cross-river mobility between Jefferson County, Kentucky and Clark County, Indiana. The project area is depicted on Figure S.1-1.

Several specific factors demonstrate the need for action, including:

- Inefficient mobility for existing and planned growth in population and employment in the Downtown area and in eastern Jefferson and southeastern Clark counties;
- Traffic congestion on the Kennedy Bridge and in the Kennedy Interchange;
- Traffic safety problems in the Kennedy Interchange and on the Kennedy Bridge and its approach roadways;
- Inadequate cross river system linkage and freeway routing opportunities; and
- Locally adopted transportation plans that call for two new Ohio River bridges.

S.2 Alternatives

The development of alternatives for the Ohio River Bridges Project began with a broad examination of potential solutions to the identified transportation needs. The existing transportation system, existing and projected traffic conditions, and the overall cross-river mobility needs in the Louisville Metropolitan Area (LMA) were examined in the development of the Purpose and Need. A wide range of potential solutions for addressing those needs was then developed. Potential alternatives included: A No-Action alternative, Travel Demand Management (TDM) alternatives, Transportation System Management (TSM) alternatives, mass transit alternatives, and various bridge/highway alternatives. Bridge/highway alternatives considered include: reconstruction of the Kennedy Interchange in combination with, one or two new bridges across the Ohio River and a tunnel underneath the Ohio River. The preferred alternative is shown in boldface throughout the FEIS.

S.2.1 Alternatives Retained for Evaluation in the Draft Environmental Impact Statement

Based on the screening conducted on the broad range of alternatives, a set of alternatives to be evaluated in the DEIS was selected. These alternatives included:

- A No-Action Alternative;
- A Transportation Management Alternative (a combination of TDM, TSM and Mass Transit improvements);
- A One Bridge/Highway Alternative (in either the East End or Downtown); and
- A **Two Bridges/Highway Alternative** (with one bridge Downtown and a second bridge in the East End).

The Transportation Management (TM) Alternative included a combination of TDM, TSM and Mass Transit alternatives that would not be effective as stand alone options, but offer benefits relative to the needs identified in the project area. The improvements that comprise the TM Alternative are also included with each of the bridge/highway alternatives evaluated in the EIS. These improvements included:

- **TDM**: non-motorized facility enhancements and employer-based trip reduction programs
- **TSM**: expanded Intelligent Transportation System applications and incident management
- **Mass Transit**: enhanced bus service

The bridge/highway alternatives include reconstruction of the Kennedy Interchange (both at its existing location or relocated south) and different alternatives to cross the Ohio River in both the Downtown and East End.

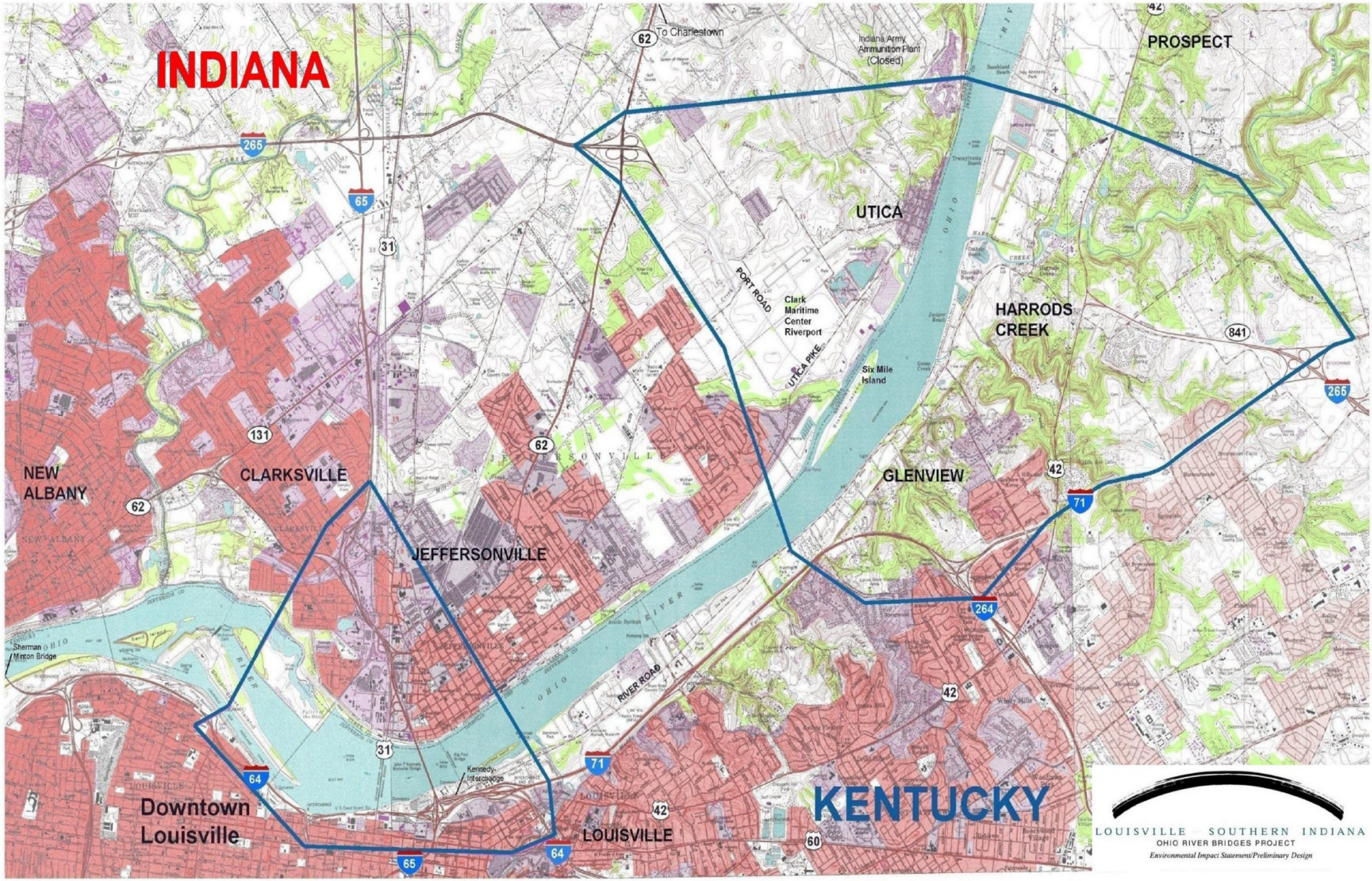

INDIANA
KENTUCKY
To Charlestown
Indiana Army Ammunition Plant (Closed)
PROSPECT
UTICA
PORT ROAD
Clark Maritime Center Riverport
UTICA PIKE
Six Mile Island
HARRODS CREEK
GLENVIEW
NEW ALBANY
CLARKSVILLE
JEFFERSONVILLE
Sherman Minton Bridge
RIVER ROAD
Kennedy Interchange
Downtown Louisville
LOUISVILLE
265
65
31
62
131
64
71
42
264
841
60
LOUISVILLE SOUTHERN INDIANA
OHIO RIVER BRIDGES PROJECT
Environmental Impact Statement/Preliminary Design
SCALE IN FEET
0
5000
10,000
SCALE IN METERS
0
2000
4000
Project Study Area

Figure S.1-1

The One Bridge/Highway Alternative includes reconstruction of the Kennedy Interchange and the addition of a new river crossing in either the Far East, Near East or Downtown corridor. In addition, this alternative includes the TDM, TSM and Mass Transit components of the TM Alternative. Different alternatives within the three corridors were also evaluated in the Draft EIS. A summary of the improvements for each alternative is provided below. The alternatives retained for evaluation are shown on Figures S.2-1 and S.2-2. Detailed plans and typical sections of these alternatives are shown in Appendix A.

Far East Corridor

Alternative A-2

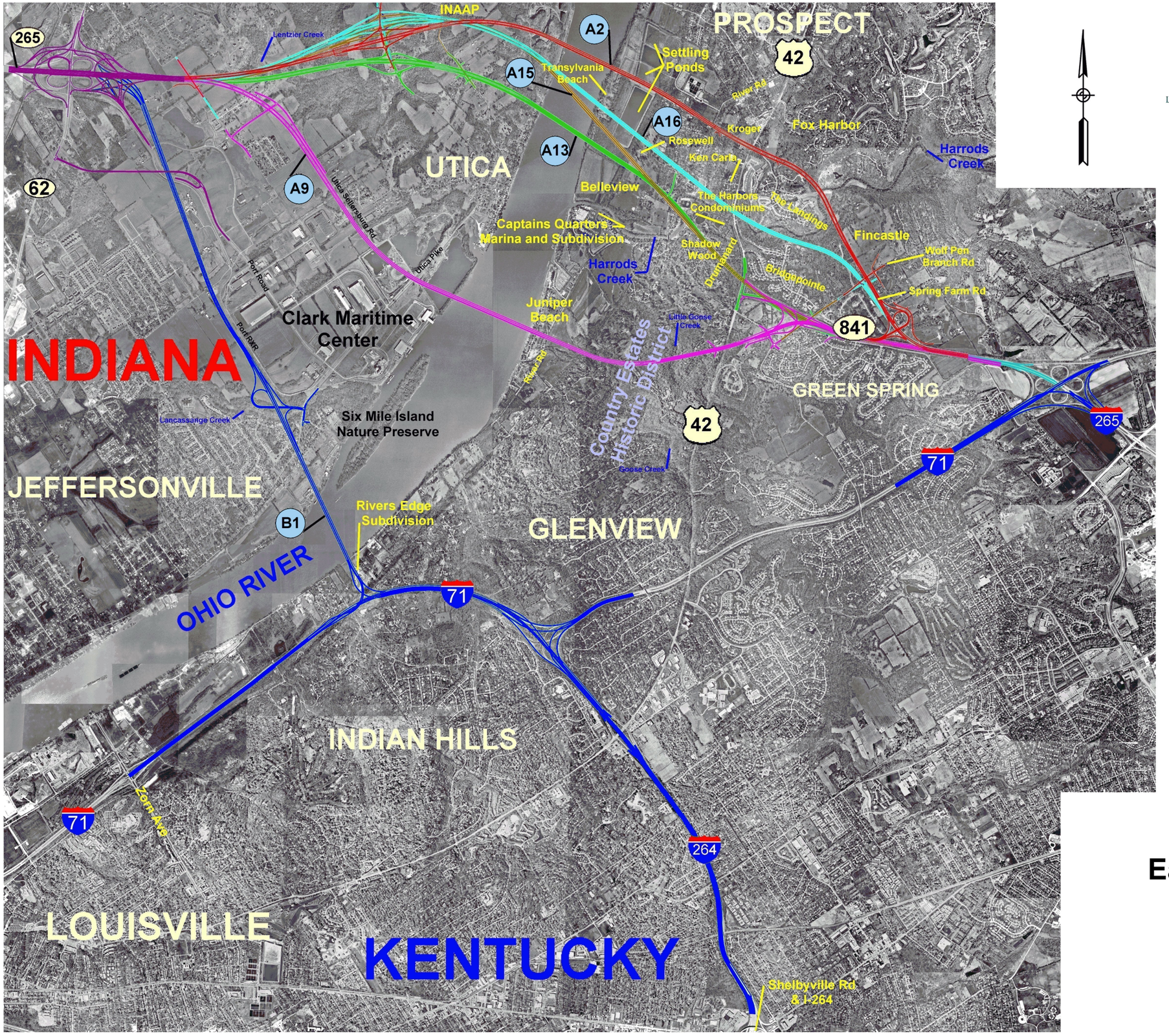
- Six-lane freeway on new alignment (including a six-lane bridge at milepost (MP) 594.8 Across the Ohio River)
- Minimum right-of-way: 200 feet in Kentucky; 260 feet in Indiana
- New interchanges at:
  - U.S. 42 Area (trumpet interchange at Spring Farm Road)
  - Salem Road
  - S.R. 265/S.R. 62 (three options)
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)

Alternative A-9

- Six-lane freeway on new alignment (including a six-lane bridge at MP 596.8 across the Ohio River)
- Minimum right-of-way: 200 feet in Kentucky; 260 feet in Indiana
- Interchanges at:
  - U.S. 42 Area (braided diamond at Wolf Pen Branch Road)
  - S.R. 265/S.R. 62 (three options)
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)

Alternative A-13

- Six-lane freeway on new alignment (including a six-lane bridge at MP 595.4 across the Ohio River)
- A portion of the new alignment would be a six lane tunnel underneath the Drumanard Property
- Minimum right-of-way: 200 feet in Kentucky; 260 feet in Indiana
- Interchanges at:
  - U.S. 42 Area (full diamond at Wolf Pen Branch Road or half diamond at U.S. 42)
  - Salem Road
  - S.R. 265/S.R. 62 (three options)
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)



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Environmental Impact Statement/Preliminary Design

SCALE IN FEET
0 5000

0 2000
SCALE IN METERS

East End Alignments Carried Forward

Figure S.2-1

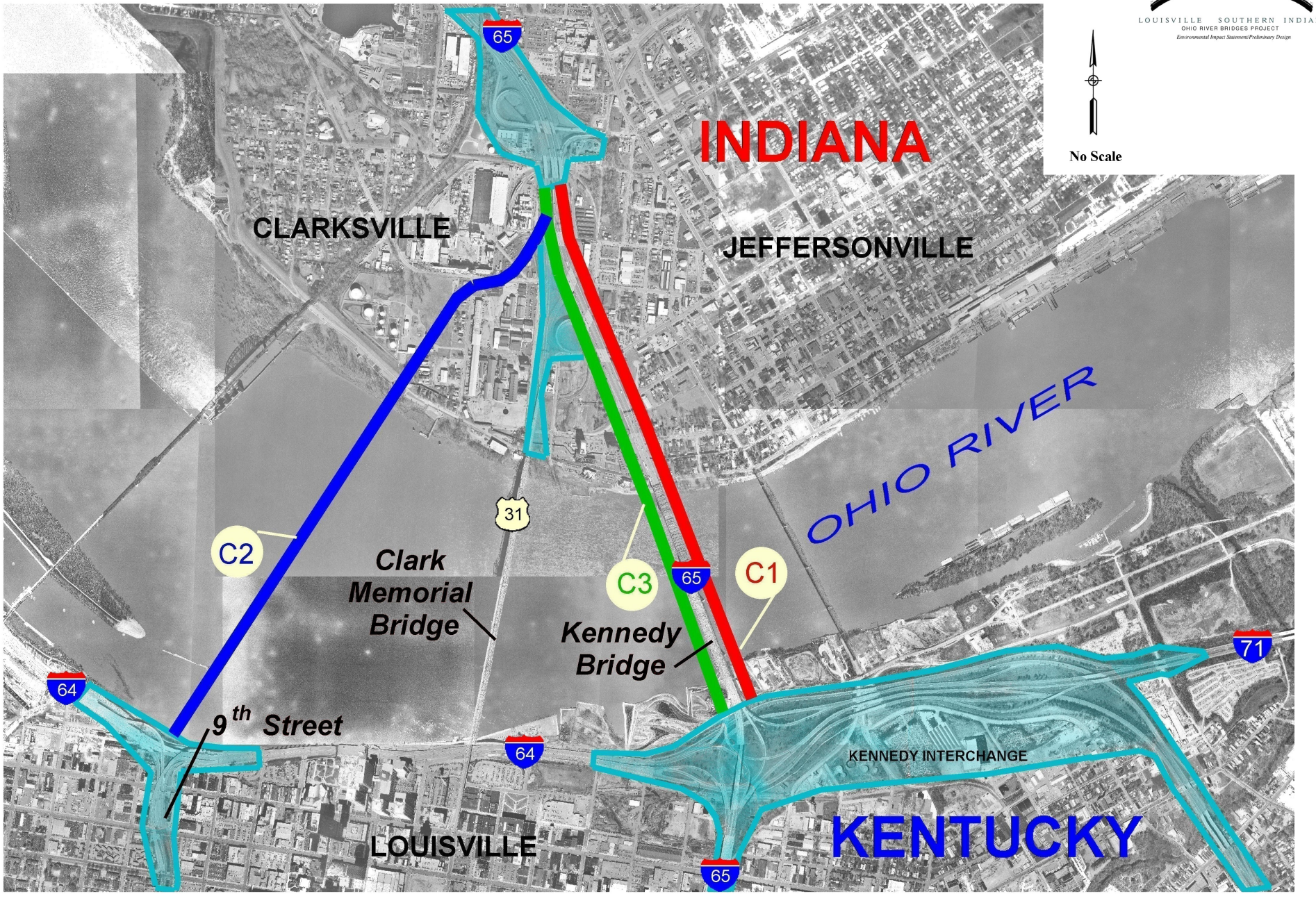


Figure S.2-2

Downtown Alignments Carried Forward

Alternative A-15

- Six-lane freeway on new alignment (including a six lane bridge at MP 595.1 across the Ohio River)
- A portion of the new alignment would be a six lane tunnel underneath the Drumanard Property
- Minimum right-of-way: 200 feet in Kentucky; 260 feet in Indiana
- Interchanges at:
  - U.S. 42 Area (full diamond at Wolf Pen Branch Road or **half diamond at U.S. 42**: See Appendix A.3)
  - Salem Road
  - S.R. 265/S.R. 62 (**Option 1,** Option 2, Option 3: See Appendix A.2)
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and **rebuild to the south**)

Alternative A-16

- Six-lane freeway on new alignment (including a six-lane bridge at milepost MP 595.1 across the Ohio River)
- Minimum right-of-way: 200 feet in Kentucky; 260 feet in Indiana
- Interchanges at:
  - U.S. 42 Area (trumpet interchange at Spring Farm Road)
  - Salem Road
  - S.R. 265/S.R. 62 (three options)
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)

Near East Corridor

Alternative B-1

- Six-lane freeway on new alignment (including a six-lane bridge at MP 598.5 across the Ohio River)
- Minimum right-of-way: 200 feet in Kentucky; 260 feet in Indiana
- Addition of one lane in each direction on I-71 between Zorn Avenue and I-264 and on I-264 between I-71 and Shelbyville Road
- Interchanges at:
  - I-71
  - Utica Pike
  - S.R. 265/S.R. 62 (three options)
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)

Downtown Corridor

Alternative C-1

- Reconfiguration of the existing seven-lane Kennedy Bridge to a six-lane bridge to accommodate I-65 southbound traffic

- Addition of a new six-lane bridge at MP 603.1 over the Ohio River, just east of the Kennedy Bridge to accommodate I-65 northbound traffic
- Provides for six I-65 through lanes in Kentucky and eight I-65 through lanes in Indiana. The other lanes are required for exit and entrance ramps.
- I-65 and U.S. 31 reconfiguration in Indiana
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and **rebuild to the south**: See Appendix A.4)

Alternative C-2

- New six-lane bridge at MP 604.1 over the Ohio River
- Conversion of the inside northbound lane on the Kennedy Bridge to a reversible lane (i.e., southbound in the morning and northbound in the evening)
- Reconfiguration of I-64 and 9th Street to provide access to new bridge
- I-65 and U.S. 31 reconfiguration in Indiana
- New interchange at Clark Boulevard
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)

Alternative C-3

- Reconfiguration of the existing seven-lane Kennedy Bridge to a six-lane bridge
- Addition of a new six-lane bridge at MP 603.2 over the Ohio River, just west of the Kennedy Bridge
- Provides for six I-65 through lanes in Kentucky and eight I-65 through lanes in Indiana. The other lanes are required for exit and entrance ramps.
- I-65 and U.S. 31 reconfiguration in Indiana
- Kennedy Interchange Reconstruction (two options – rebuild In-Place and rebuild to the south)

The Two Bridges/Highway Alternative includes reconstruction of the Kennedy Interchange and the addition of two new river crossings, with one in the Downtown corridor and one in either the Far East or Near East corridor. The same alternatives described with the One Bridge/Highway Alternative are options for the Two Bridge/Highway Alternative. In addition, the bridge/highway alternatives include the TDM, TSM and Mass Transit components of the TM Alternative.

S.2.2 Evaluation of Alternatives

A set of evaluation measures was developed to evaluate how effectively an alternative addressed each of the five needs identified in Section S.1. A summary of these measures is provided below.

Efficient Cross-River Mobility for Population and Employment Growth

Alternatives were evaluated to determine their ability to reduce vehicle hours of travel (VHT), vehicle miles of travel (VMT) and vehicle hours of delay (VHD) in the LMA.

Traffic Congestion

Alternatives were evaluated to determine their ability to improve volume-to-capacity ratios (v/c) and levels of service (LOS) on the Kennedy Bridge, and to improve peak hour speed, throughput and levels of service in the Kennedy Interchange.

Traffic Safety

Alternatives were evaluated to determine their ability to comply with all current roadway standards.

Cross River System Linkage and Freeway Routing Opportunities

Alternatives were evaluated to determine whether they provided additional cross-river linkage and freeway routing opportunities.

Consistency with Local Transportation Plans

Alternatives were evaluated to determine their ability to meet local transportation plans.

Table S.2-1 summarizes the measures of effectiveness for each of the alternatives evaluated in the Final EIS.

TABLE S.2-1
MEASURES OF EFFECTIVENESS SUMMARY

Alternative	System Efficiency* Percent Change			User Benefits $(Billion)	Traffic Congestion					Traffic Safety	System Linkage	Local Plan Compatibility
						Bridge Levels of Service						
	VMT	VHT	VHD		Total Cross-River Demand as Percent of Capacity	Sherman Minton	Clark Memorial	Kennedy Memorial	East End			
No-Action				-	130	E	D	E	-	No	No	No
Transportation Management	0	-1	-6	0.40	130	E	D	E	-	No	No	No
One Bridge/Highway												
Far East	0	-3	-14	0.98	98	E	C	E	C	No	Yes	Partial
Near East	0	-3	-13	0.93	98	E	C	D	C	No	Yes	Partial
Downtown (C-1/C-3)	0	-2	-9	0.60	100	E	C	D	-	Yes	No	Partial
Downtown (C-2)	0	-2	-8	0.52	106	E	C	E	-	No	No	Partial
Two Bridges/Highway												
Far East and C-1/C-3	**-1**	**-6**	**-22**	**1.63**	**78**	**E**	**B**	**C**	**C**	**Yes**	**Yes**	**Yes**
Far East and C-2	-1	-6	-22	1.67	81	E	B	D	C	No	Yes	Yes
Near East and C-1/C-3	0	-5	-18	1.44	79	E	B	C	C	Yes	Yes	Yes
Near East and C-2	-1	-5	-19	1.52	81	E	B	D	C	No	Yes	Yes

* These numbers are a measure of the efficiency of the LMA network. Negative numbers represent an increase in the LMA efficiency.

Note: Percent change is relative to the No-Action Alternative. Population and Employment Growth and Traffic Congestion Measures are for a Year 2025 weekday.

Traffic Safety: Relocation of the Kennedy Interchange results in a high level of safety ranking or rated Yes. Reconstruction of the Kennedy Interchange in-place does not separate I-64 through movement traffic and has a lower design geometry than the relocated interchange and as such its safety level aspects are ranked low or No.

Bold Row is Preferred Alternative.

S.2.3 Costs

Cost estimates for the bridge/highway alternatives were developed. These costs are shown in Table S.2-2. The cost estimate for each alternative was developed using a common methodology in order to distinguish between alternatives for alternatives analysis purposes. A "Cost Estimate Review" of the Preferred Alternative was accomplished on March 18-19, 2003 to refine the final cost estimate for the Preferred Alternative, and build in costs for contingencies, mitigation, and risks/unknowns based on experience from other major projects from around the country. The refined baseline cost estimate for the Preferred Alternative is $1.936 billion in 2003 dollars ($1,312,239,342 from KY, $623,433,806 from IN). This equates to a **$2,494,000,000** total project cost in year of expenditure dollars over a 2004-2020 design and construction period, assuming a 4% inflation rate.

The refined baseline cost estimate, and the associated assumptions and project staging are presented in the "Financing Options" document, which can be viewed at the local project office. Transportation revenues (both state and federal) that have come to Indiana and Kentucky over the life of ISTEA and TEA-21 (FY 1992-2003) were used to project future revenues available to the respective states over the 2004-2020 design and construction period. Strategies such as new revenue sources and bonding are discussed. Bonding would spread the year-to-year costs more evenly over the construction period, or over a longer period. This report details one reasonable financing strategy to construct the project. This strategy will need to be refined over time to support development of the Finance Plan.

It should be noted that INDOT and KYTC are required to prepare a Finance Plan in accordance with the FHWA Finance Plan Guidance (May 23, 2000) and it needs to be found acceptable to FHWA before the Louisville Bridges Project can be advanced to construction in 2007. This Finance Plan will identify specific committed revenue sources that will be used to fund the Louisville Bridges Project. Final Design and ROW acquisition can proceed during the first couple years after the ROD is issued until the respective States identify the specific revenue streams that will be committed to advance the project. Final Design will also allow the estimated project costs to be refined before construction begins.

Table S.2-2
CAPITAL COST ESTIMATE OF BRIDGE/HIGHWAY ALTERNATIVES
($M in 2000 Dollars)

Alternative	Indiana Cost	Kentucky Cost		Total
		East End	Downtown	
A-2				
In-Place	178.8	198.1	305.6	682.5
Relocated	178.8	198.1	639.2	1,016.1
A-9				
In-Place	285.8	248.2	305.6	839.6
Relocated	285.8	248.2	639.2	1,173.2
A-13				
In-Place	194.7	246.6	305.6	746.9
Relocated	194.7	246.6	639.2	1,080.5
A-15				
In-Place	199.7	265.1	305.6	770.4
Relocated	**199.7**	**265.1**	639.2	1,104.0
A-16				
In-Place	182.8	255.9	305.6	744.3
Relocated	182.8	255.9	639.2	1,077.9
B-1				
In-Place	262.5	385.0	305.6	953.1
Relocated	262.5	385.0	639.2	1,286.7
C-1				
In-Place	218.1	N/A	383.2	601.3
Relocated	**218.1**	**N/A**	**716.8**	934.9
C-2				
In-Place	318.1	N/A	545.6	863.7
Relocated	318.1	N/A	879.2	1,197.3
C-3				
In-Place	226.2	N/A	383.2	609.4
Relocated	226.2	N/A	716.8	943.0
Preferred Alternative*	**417.8**	**265.1**	**716.8**	**1,399.7**

Note: The two rows for each alternative are for the Kennedy Interchange Rebuild In Place and the Relocation to the South options, respectively. Highlighted information is for Preferred Alternative (Two Bridges **A-15** and **C-1** with Relocated Kennedy Interchange).

For a more refined discussion of the cost of the Preferred Alternative, see the Financing Options document available at the local project office.

S.3 Summary Of Impacts

In this Final EIS, impacts are quantified by the alternatives carried forward for evaluation. A summary of the environmental impacts is provided in Table S.3-1 and summarized below.

Far East Corridor

Alternative A-2

This alternative would have had the highest number of floodplains crossed (4) of all of the East End alternatives evaluated. In spite of the number of floodplains crossed, this option had the least encroachment on floodplains (16 acres). Alternative A-2 ranked second in the greatest amount of impact to wildlife habitat and wetlands and in its disturbance of in situ soils. Alternative A-2 had the second least number of noise receptors sites impacted. It would have used property from three Section 4(f) resources. For the remainder of the quantifiable elements of this investigation, its impacts fell in the middle range for all of the East End alternatives. The length of this alternative was 7.5 miles and its total cost was estimated at $377 million.

Alternative A-9

Of the East End alternatives, Alternative A-9 would have had the second greatest impact to the East End historic districts (5) and the third lowest impact to wetlands (4.66 acres). It would have required the use of property from three Section 4(f) resources. It would have impacted 151 acres of wildlife habitat and 204 acres of in situ soils. It would have required the displacement of the lowest number of total structures (79). It had the highest amount of farmland impacts. For other issues, its impacts were in the middle range among the East End alternatives. This alternative was nine miles long with an estimated cost of $534 million.

Alternative A-13

This alternative would have impacted the largest number of archaeological sites (9) and the most noise receptor sites. This alternative had the lowest impact to farmland. It would have required the acquisition of the second highest number of structures for the East End alternatives. It would have required the use of property from one Section 4(f) resource. It ranked second highest in the number of impacts to historic sites. For the remainder of the quantifiable data categories, it was in the middle of the range for the East End alternatives. This alternative was 7.6 miles long and would have cost $441 million.

Alternative A-15

This alternative will use property from one Section 4(f) resource and would impact the second greatest number of historic sites (12). It ranks first in the number of noise receptor sites impacted and impacts five archaeological sites. This alternative had the second lowest farmland impacts. For other resources, it ranks low, having less impact than most other East End alternatives. The length of this alternative is 7.9 miles, and its total cost is estimated at $465 million.

Alternative A-16

The alternative had the highest amount of impact to in situ soils (299 acres), wildlife habitat (194 acres), number of streams crossed (13 crossings) and encroachment on floodplains (39 acres) of the East End alternatives. It would have used property from one Section 4(f) resource. Alternative A-16 ranked third in impacts to historic sites. It would have displaced the third

highest amount of farmland (139 acres) and ranked third lowest in noise receptor sites impacted. Alternative A-16 ranked in the middle area for other resources. Alternative A-16 was 7.7 miles long and would have cost $439 million.

Near East Corridor

Alternative B-1

Of the East End alternatives, Alternative B-1 would have had the largest number of displacements (282). It was the only East End alternative to require displacement of community resources (5), a church, three Metropolitan Sewer District (MSD) monitoring sites and a water pumping station. It required the use of property from four (4) Section 4(f) resources and impacted 15 historic sites. It ranked second highest in the area of farmland displaced and floodplain encroachment. It had the least impact to streams (six crossed) and wetlands (2.7 acres). For the other resources, it ranked in the middle for the East End alternatives. This alternative had a mainline length of 9.4 miles and would have cost $648 million.

Downtown Corridor

Alternative C-1

Alternative C-1 (new Kennedy Bridge upstream) has the highest impact to the floodplains (13 acres) and (0 acres) of wildlife habitat impact. It impacts five historic districts and three Section 4(f) properties, ranking it second highest in these categories. It is second lowest in the number of residential displacements and ranks in the middle in terms of noise receptor sites impacted. **Alternative C-1** ranks third in commercial property acquisition. This alternative will impact (2) historic sites. The cost of this alternative is estimated to be $296 million.

Alternative C-2

This alternative would have impacted the most historic sites (7), the most historic districts (7), and the most Section 4(f) properties (5). It also has the most noise receptor site impacts and ranked second in floodplain encroachment. This alternative would have had no (0 acres) wildlife habitat impact, and ranked lowest in the Downtown corridor in total residential and commercial displacements. The cost of this alternative would have been $481 million.

Alternative C-3

Alternative C-3 would have had the greatest number of residential displacements (180 units), commercial displacements (75 businesses) and, as with **Alternative C-1** and Alternative C-2, no impacts (0 acres) to wildlife habitat. It was equal to **Alternative C-1** for impacts to historic sites (2). It had the lowest number noise receptor site impacts of the Downtown alternatives. It would have required the use of two (2) Section 4(f) properties. Alternative C-3 would have impacted five (5) historic districts and nine acres of floodplain. The cost of this alternative would have been $304 million.

Table S.3-1
Summary of Impacts

Quantitative Impacts To	Alternatives											Preferred Alternative
	Far East					Near East	Kennedy Interchange		Downtown			
	A-2	A-9	A-13	A-15	A-16	B-1	In-Place	Relocated	C-1	C-2	C-3	Total
Agricultural Resources												
Acres of prime farmland converted	137	160	112	**136**	139	148	N/A	**N/A**	**N/A**	N/A	N/A	**136**
Section 4(f) Properties used	3	3	1	**1**	1	4	4	**4**	**3**	5	2	**8**
Cultural Resources												
Number of historic districts impacted	3	5	6	**6**	4	4	2**	**2****	**5**	7	5	**11**
Number of historic sites impacted	6	12	12	**12**	10	15	0	**0**	**2**	7	2	**14**
Number of archaeological sites impacted	2	8	9	**5**	7	3	0	**0**	**0**	0	0	**5**
Air Quality												
Number of sites exceeding NAAQS (1 hr/8 hr)	0/0	0/0	0/0	**0/0**	0/0	0/0	0/0	**0/0**	**0/0**	0/0	0/0	**0/0**
Noise - Number of impacted receptor sites[3]	19	26	33/32 (1)	**33/29 (1)**	23	16	8/8/7 (2)	**7/8/7 (2)**	**6**	9	5	**46**
Noise - Number of impacted Historic Properties	6	6	8/8 (1)	**7/7(1)**	5	11	8/9/10 (2)	**6/9/10 (2)**	**9**	17	6	**22**
Natural Resources												
Acres of soil impacted	279	204	205	**210**	299	224	0	**0**	**0**	0	0	**210**
Acres of terrestrial wildlife/habitat impacted*	178	151	124	**153**	194	154	0	**1**	**0**	0	0	**154**
Wetlands												
Acres of wetlands impacted	5.51	4.66	4.79	**3.86**	6.14	2.74	0	**0.25**	**0**	0	0	**4.11**
Water Resources												
Number of stream impacts (including Ohio River)	9	12	9	**12**	13	6	0	**1**	**1**	1	1	**14**
Floodplains												
Number of floodplains crossed	4	3	3	**2**	2	2	0	**1**	**1**	1	1	**4**
Total acres of encroachment	16	26	21	**19**	39	37	23	**53**	**13**	12	9	**85**
Number of Residential Displacements	64	67	73	**63**	62	252	2	**4**	**23**	21	180	**90**
Number of Commercial Displacements	0	2	0	**0**	0	24	30	**50**	**30**	40	75	**80**
Number of Agricultural Properties Impacted	18	10	20	**18**	18	1	0	**0**	**0**	0	0	**18**
Number of Community Resources Displaced	0	0	0	**0**	0	5	0	**0**	**0**	0	0	**0**

*Riparian Forest, Upland Fields, Upland Forest and Wetland/Streams

**There are two historic districts (Phoenix Hill and Butchertown) that are also impacted by Alternatives C-1, C-2 and C-3.

(1) Designates a/b Alternatives half diamond at US 42 and full diamond at Wolf Pen Brand Road, respectively.

(2) Designates Noise impact for the Kennedy Interchange options associated with Alignments C1/ (Single Bridge A or B)(C2) / C3

(3) Number of impacted receptor sites, excluding impacted Historic Properties

Kennedy Interchange

Improvements to the Kennedy Interchange are included with each bridge/highway alternative. The impacts for both interchange improvement options (rebuild In-place and relocate to the south) are listed separately in Table S.3-1. Each alternative's total impact would include the impacts from one of these options.

Kennedy Interchange In-Place

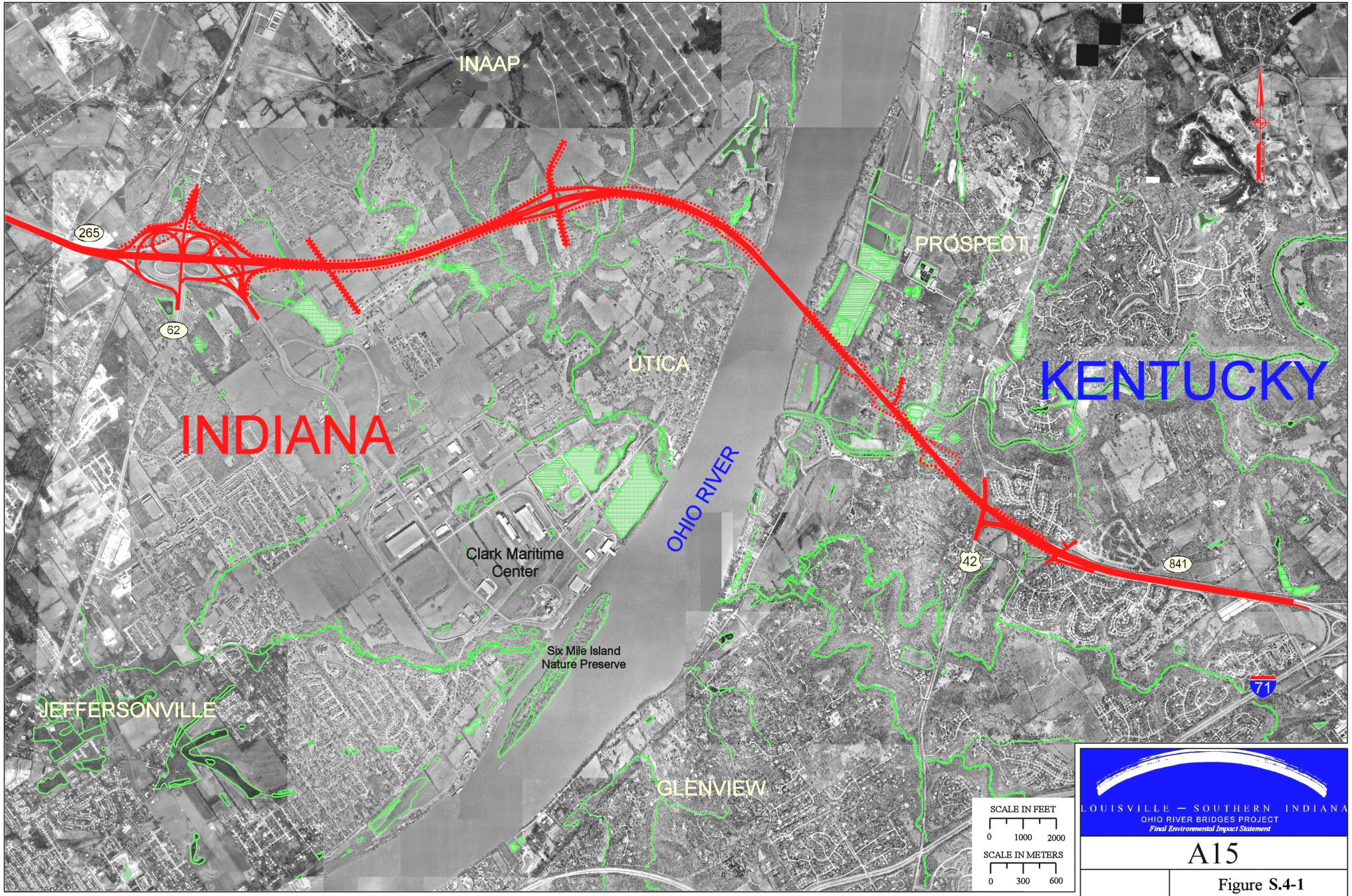
Reconstructing the Kennedy Interchange In-place would have created the same impacts to Section 4(f) properties (4) and greater noise receptor site impacts than the relocated option. It would have impacted two historic districts, the same as the Kennedy Interchange relocated option, acres of wildlife habitat (0), acres of wetland impacted (0), stream impacts (0), floodplain impacts (0), floodplain encroachment (23 acres) and had two residential and 30 commercial displacements. The cost of replacing the Kennedy Interchange in its present location would have been $306 million.

Kennedy Interchange Relocated

Moving the Kennedy Interchange south of its present location will impact the same number of Section 4(f) properties (4) and lesser noise receptor sites as the in-place option. It will also impact two historic districts. The reconstruction of the Kennedy Interchange will impact wildlife habitat (1 acre), wetlands (0.25 acres), stream crossings (1), floodplains (1), floodplain encroachment (53 acres), four residential displacements and 50 commercial displacements. The cost of relocating the Kennedy Interchange to the south is estimated to be $639 million.

S.4 Preferred Alternative

The Preferred Alternative for the Ohio River Bridges Project is the Two Bridges/Highway Alternative consisting of **Alternative A-15** in the Far East corridor (see Figure S.4-1 and Appendices A.2 and A.3; with the **Option 1** S.R. 62 Interchange and the **half diamond at U.S. 42**) and **Alternative C-1** in the Downtown corridor, along with the **Kennedy Interchange Reconstruction to the south** (see Figure S.4-2 and Appendix A.4). The Preferred Alternative also includes non-motorized facility enhancements (17 foot pedestrian and bicycle paths on both bridges), expanded employer-based trip reduction programs, expanded Intelligent Transportation System (ITS) applications, expanded incident management programs and enhanced cross-river bus service. (All of the foregoing non- bridge/highway elements, which also were included in the Transportation Management Alternative, are described in detail in Sections 3.2.2 through 3.2.4 and Section 3.3.6 and were included in each of the Bridge/Highway Alternatives.) This section describes the basis for the selection of the Two Bridges/Highway Alternative and the specific alternatives selected in the Far East and Downtown corridors, as well as the Kennedy Interchange Reconstruction option.



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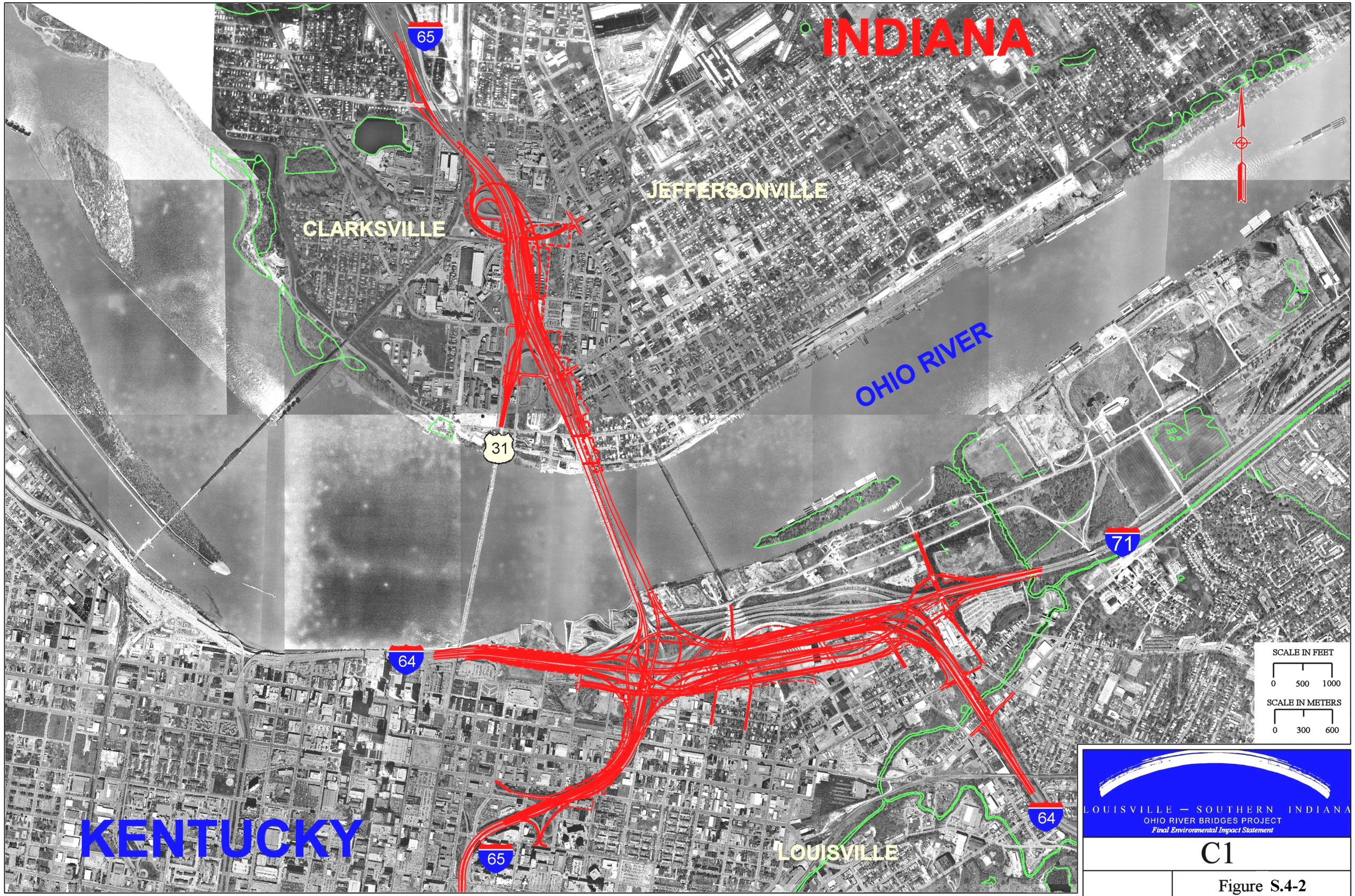
A15

Figure S.4-1



LOUISVILLE — SOUTHERN INDIANA
OHIO RIVER BRIDGES PROJECT
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Figure S.4-2

S.4.1 Two Bridges/Highway Alternative

The Two Bridges/Highway Alternative provides the greatest improvement to cross-river mobility and best satisfies the needs identified in Chapter 2. None of the other alternatives (Single Bridge/Highway, Transportation Management, or No-Action) sufficiently meets all of the needs identified in Chapter 2 so as to constitute a feasible and prudent long-term solution to the region's cross-river mobility needs. The Two Bridges/Highway Alternative provides the greatest improvements in the efficiency of the transportation system, as measured by total vehicle hours of travel, miles of travel and hours of delay. The Two Bridges/Highway Alternative is the only option that provides sufficient cross-river capacity to meet the region's long-term needs. With any of the Single Bridge/Highway Alternatives, the total cross-river demand-to-capacity ratio – based on LOS D service level volumes - will once again be near or above 100 percent by 2025, meaning that the capacity of the Ohio River bridges to handle cross-river travel demand will have been exceeded and additional improvements will once again be necessary. In contrast, the Two Bridges/Highway Alternatives reduce that ratio to between 78 percent and 81 percent, providing additional capacity and a longer-term solution to the area's cross-river mobility needs. The Two Bridges/Highway Alternative also provides the greatest improvements to the Kennedy Bridge and the Kennedy Interchange. The performance of the Kennedy Bridge (I-65 crossing), as measured by demand-to-capacity ratios and levels of service (LOS), would be improved the most by the Two Bridges/Highway Alternatives. For example, none of the single bridge options would reduce the 2025 demand-to-capacity ratio on the Kennedy Bridge significantly below 100 percent, meaning that recent levels of congestion would be expected to return in that time. Desirable service rates associated with LOS C peak period operations are only achieved with Alternative **C-1**/C-3 East End two bridge alternative. Similarly, average peak hour speeds and hours of delay in the Kennedy Interchange would be improved the most under the two-bridge options. The Downtown Bridge is expected to be completed and open to traffic in 2020. It is critical that this bridge solution provide sufficient LOS for an adequate period of time.

System Efficiency

The Two Bridges/Highway Alternative generally provides the greatest improvements in cross-river transportation efficiency. For example, as compared to the No-Action Alternative, the two bridge solution with bridges in the Downtown and Far East corridors will produce the greatest decrease in daily VHT in the LMA: a decrease of 51,000 to 52,000 hours per weekday, or approximately 6 percent of total vehicle hours of travel in the LMA (See Figure 1.1-1). In contrast, a single bridge downtown would result in about one-third as much reduction, or 17,000 to 20,000 hours per day (approximately 2 percent), and a single eastern bridge would reduce VHT by 30,000 to 32,000 hours per day (approximately 3 percent). Similarly, the two-bridge options would result in the greatest reduction in total VMT in the LMA: a reduction of approximately 155,000 to 216,000 miles per day, or approximately 1 percent of total VMT. This reflects a significant improvement in overall regional system efficiency in the LMA. In contrast, a single bridge in the Downtown or Far East corridor would result in a slight increase in VMT (4,000 to 35,000, or less than 1 percent).

The value of these travel time and distance savings, compared to the No-Action Alternative, that would accrue to Louisville travelers over a project post-opening 20 year time period, would be $1.6 billion. Similar savings of $0.5 to $1.0 billion are projected for a Single Bridge Alternative, and $0.4 billion for the Transportation Management Alternative. Notably, while all of the "build" options would reduce the total hours of congestion in the LMA—measured as VHD—a two-bridge combination with bridges in the Downtown and Far East corridors would result in the greatest reduction in delays: 45,000 VHD, or approximately 22 percent of total delay. In contrast, a single bridge downtown would be less than half as effective, reducing delays by only 16,000 to 19,000 hours per day (approximately eight percent to nine percent). A single eastern bridge would only reduce delays by 27,000 to 30,000 hours (approximately 13 percent to 14 percent).

The Transportation Management Alternative would produce even fewer reductions in VHT and VHD, and a comparable increase in VMT, as compared to the single-bridge alternatives. This alternative would not substantially address or improve transportation system efficiency.

Total Cross-River Demand as Percent of Capacity

Only a Two Bridges/Highway Alternative would reduce the total cross-river demand-to-capacity ratio (see Section 2.3 for an explanation of how "Demand as a Percent of Capacity" is calculated) in 2025 substantially below 100 percent. (Capacity is defined using minimally accepted LOS D service rates and not those of desired design rates associated with LOS C.) This measure predicts total cross-river demand in the LMA as a percentage of total cross-river capacity (i.e., all Ohio River bridges in the LMA). A single bridge in either the Far East or Near East corridor would reduce this percentage to 98 percent in 2025, while a single bridge downtown would result in total cross-river demand at 100-106 percent of capacity, five to ten years after the bridge is opened. This means that with one new bridge, the capacity of the Ohio River bridges in the LMA would once again be met or exceeded by 2025, likely requiring additional improvements in the cross-river transportation system to avoid increasingly worse congestion and delays. In contrast, each of the two-bridge alternatives would reduce total cross-river demand as a percentage of capacity to 78-81 percent, allowing the cross-river transportation system to function more efficiently and avoiding the need for additional improvements in just over 20 years (just 5-10 years after the Downtown bridge opens to traffic).

The Transportation Management Alternative would result in no improvement in total cross-river capacity as compared to the No-Action Alternative, and thus would not constitute a reasonable solution to the region's cross-river mobility needs.

Kennedy Bridge Demand as Percent of Capacity

The Kennedy Bridge is already over capacity by about 6 percent as defined by LOS D flow rates. It is expected to be at 142 percent of cross-river demand to capacity, as defined by LOS D, by 2025. The most significant improvement to traffic on the Kennedy Bridge would be provided by a combination of a new downtown bridge and an eastern bridge. Under this scenario, the Kennedy Bridge (including the new companion span) would operate at 70-74 percent of capacity

in 2025. Specifically, the combination of new bridges in the Downtown and Far East corridors would result in the Kennedy Bridge operating at 74 percent of capacity in 2025. In contrast, the most effective single-bridge option—downtown Alternative **C-1**/C-3—would result in the Kennedy Bridge operating at 95 percent of capacity in 2025, five to 10 years after being opened to traffic. All of the other single bridge alternatives (Far East, Near East and Downtown Alternative C-2) would result in the Kennedy Bridge being over capacity by 7-24 percent in 2025. Thus, all of the single bridge options would result in the downtown I-65 crossing operating near or above its capacity by 2025, effectively returning that crossing to the congested travel conditions that have prevailed in recent years. The combination of a Far East bridge with a new bridge on the downtown Alternative **C-1**/C-3 would free up an additional 21 percent of the Kennedy Bridge (I-65 crossing) capacity, as compared to the most effective single bridge option (Alternative **C-1**/C-3 alone).

Similarly, an evaluation of LOS on the Kennedy Bridge—a measure of congestion that ranges from LOS A for the least congestion and best traffic flow to LOS F for the most congestion and worst flow—shows that only the combination of a new bridge in the downtown Alternative **C-1**/C-3 and a bridge in either the Far East or Near East corridor would result in a LOS C on the Kennedy Bridge in 2025. LOS C operations are desired when new or rehabilitated roadway facilities are considered. LOS D is minimally acceptable when existing roadway facilities are analyzed. LOS D operations are considered a precursor to unacceptable operating conditions, and would be unacceptable, just 5-10 years after opening the new Downtown bridge. All of the other bridge/highway alternatives, both single bridge and two bridges, would result in LOS D or LOS E on the Kennedy Bridge (I-65 crossing). The No-Action and Transportation Management Alternatives both would provide LOS E on the Kennedy Bridge. The two bridge alternatives also provide the best levels of service on the Clark Bridge—LOS B—compared to LOS C for the single bridge options and LOS D for the No-Action and Transportation Management Alternatives.

Kennedy Interchange Operations

While all of the "build" alternatives show significant improvements over the No-Action Alternative, the Two Bridges/Highway Alternatives show the greatest improvements in weekday traffic operations in the Kennedy Interchange area. With no new bridges, average morning and evening peak hour speeds are forecast to be less than 20 mph in 2025. Under the Two Bridges/Highway Alternatives, 2025 peak hour speeds are forecast to range from 48-50 mph in the Kennedy Interchange. Average peak hour speeds for the Single Bridge/Highway Alternative in Alternative **C-1**/C-3 would be slightly lower, at about 47 mph. A single eastern bridge or the other downtown single bridge option (Alternative C-2) would have comparable afternoon speeds, but would have considerably lower morning peak hour speeds (31-33 mph).

Similarly, the Two Bridges/Highway Alternatives would show the greatest improvements in VHD in the Kennedy Interchange in 2025, followed by the downtown single bridge option along Alternative **C-1**/C-3.

Cross-River System Linkage

The Near East and Far East single highway bridge alternative, or as an element of the Two Bridges Alternatives, would address the inadequate cross-river system linkage issue. The gap in the eastern circumferential freeway system would be closed. Alternative cross-river freeway routing opportunities would be provided.

The East End Bridge would serve the highest population growth areas in the LMA. The Downtown bridge would serve the area of largest employment, downtown Louisville.

Local Transportation Plans

As noted in Chapter 2, the construction of a new Downtown bridge parallel to the Kennedy Bridge and a new eastern bridge connecting KY 841 in Kentucky and S.R. 265 in Indiana, along with a reconstruction of the Kennedy Interchange, is included as part of the Kentuckiana Regional Planning and Development Agency (KIPDA) Horizon 2025 Regional Mobility Plan (RMP), which is the twenty year transportation plan for the LMA. This plan element is based on years of study of the region's cross-river mobility needs and extensive prior public involvement, culminating in the ORMIS two-bridge recommendation. Following the conclusion of ORMIS, KIPDA officially incorporated that two-bridge recommendation into the RMP. As such, the two bridge recommendation included in the RMP reflects the studied judgment of the local government jurisdictions, acting through the federally prescribed transportation planning process conducted under the auspices of KIPDA. The Preferred Alternative is consistent with the long-term vision of local governments and transportation planners of the best solution for the LMA's cross-river mobility needs.

Single bridge alternatives would only be partially supportive of the KIPDA RMP, which calls for new cross-river bridges in both the Downtown and Far East corridors. The No-Action and Transportation Management Alternatives do not support the RMP.

Per 40 CFR 93.107, KIPDA will need to amend the KIPDA 2025 RMP to reflect the FEIS Preferred Alternative "design concept and scope" prior to process completion (FHWA approval of the Record of Decision (ROD)). The current KIPDA RMP reflects the ORMIS 4-lane recommendation for the I-265 outer beltway between I-71 in Kentucky and S.R. 62 in Indiana. The 4-lane I-265 configuration resulted in an unacceptable LOS D, and so the Preferred Alternative provides for a 6-lane section. Provisions of 3-lanes in each direction results in the desired LOS C in the 2025 design year.

S.4.2 Eastern Alternative

Selection of Alternative A-15

Alternative A-15 provides for a six lane I-265 Freeway from I-71 in Kentucky to S.R. 62 in Indiana (see Appendix A.9 Typical Sections). **Alternative A-15** also includes a 17 foot bicycle

and pedestrian path on the downstream side of the bridge and terminates at River Road in Kentucky and Utica-Charlestown Road in Indiana.

Alternative A-15 was selected as the eastern bridge component of the Preferred Alternative based on a number of considerations. Among the eastern bridge options, **Alternative A-15** is likely to have the least overall harm to important natural and community resources in Indiana and Kentucky. This alternative follows the existing right-of-way of KY 841 from I-71 to U.S. 42 in Kentucky, helping to minimize impacts to existing land uses. As a result, **Alternative A-15** has the second lowest number of residential displacements (63) among the eastern options, with only one more displacement than Alternative A-16 (62). This alternative also has no commercial displacements.

The construction of a tunnel under the Drumanard property would help to minimize or avoid negative impacts on the community of Prospect and on important historic properties in the area. Construction of the proposed 2,000 foot tunnel would minimize impacts to the historic Drumanard estate, which is listed on the NRHP, and would reduce visual and noise impacts for residents and visitors to the area. Because the freeway would enter the tunnel before KY 841 reaches U.S. 42, the freeway would pass under U.S. 42, the primary surface route through the area, thereby eliminating the visual effects that would be associated with an aboveground freeway structure at that location. An access route to the mainline will be constructed west of River Road at the west end of the bridge over Harrods Creek. This route will connect the mainline to Transylvania Avenue for emergency (vehicular) access to the tunnel, which is approximately 2,500 feet to the east. **Alternative A-15** is preferable to Alternatives A-16 and A-2, which are located farther upstream, because those alternatives both pass closer to the center of the city of Prospect; in fact, Alternative A-2 would pass through the heart of the city and has been opposed vigorously by representatives of Prospect city government and numerous citizens.

Alternative A-15 is largely similar to Alternative A-13 on the Kentucky side of the Ohio River (including the Drumanard tunnel), but is preferable to Alternative A-13 on the Indiana side. In fact, **Alternative A-15** was created in response to a suggestion from a member of the Utica area work group. By shifting the alternative further upstream on the Indiana side of the river, **Alternative A-15** minimizes impacts to the township of Utica and to the area just to the northeast in which a large portion of the ongoing growth in Utica is occurring. This combination of the minimization of harm on both sides of the Ohio River makes **Alternative A-15** the most preferable eastern alternative for minimizing harm to community resources.

Alternative A-15, on balance, also provides the best minimization of impacts to the natural environment of the eastern bridge alternatives. It would impact the second lowest amount of wetland acreage (3.86 acres), approximately one acre more than Alternative B-1 (which is not preferable overall, as discussed in greater detail below). Alternatives A-2, A-9 and A-16 all would have greater wetlands impacts (5.51, 4.66 and 6.14 acres, respectively).

The combination of wetlands and stream impacts associated with Alternatives A-9 and A-16 prompted the U.S. Environmental Protection Agency (USEPA) to rate those alternatives as having Environmental Objections. (USEPA rated the other alternatives in the Far East corridor,

Alternatives A-2, A-13, and **A-15** as having Environmental Concerns.) Alternative A-9 would impact Goose Creek and Little Goose Creek in Kentucky, and would directly impact the upstream buffer area included in the Six Mile Island Nature Preserve, which is protected from highway takings under Kentucky state law. Alternative A-16 would require extensive impacts to Harrods Creek in Kentucky, including three separate crossings, and would impact Lentzier Creek in Indiana.

Alternative A-15 would have the second lowest impact on floodplain acreage (19 acres); only Alternative A-9 would have lower floodplain impacts (16 acres). While **Alternative A-15** would impact eighteen agricultural properties—compared to 10 properties for Alternative A-9, 18 properties for Alternatives A-2 and A-16, and 20 properties for Alternative A-13—it would directly impact fewer acres of prime farmland (136 acres) than Alternatives A-2, A-9 and A-16. Alternatives A-2 and A-16 both would have considerably higher soil impact acreage and terrestrial wildlife habitat impact acreage than **Alternative A-15**, which in turn would have somewhat higher impacts to those resources than Alternatives A-9 and A-13.

Although **Alternative A-15** would cause the largest number of noise receptor impacts —about 1.3 to 2 times as many as the other eastern alternatives, except Alternative A-13—**Alternative A-15** would have the second lowest number of substantial noise impacts (i.e., those with the largest noise increases). Only Alternative A-9 would have fewer substantial noise impacts. The inclusion of the Drumanard tunnel will help to minimize noise impacts for many of the sensitive historic properties in the vicinity of U.S. 42 and Wolf Pen Branch Road in Kentucky.

Although all of the eastern alternative options would have impacts to historic properties, **Alternative A-15** would help to minimize those impacts, particularly through the construction of the Drumanard tunnel. Tunnel construction using tunnel boring methods, rather than a "cut and cover" construction method, will avoid any Section 4(f) use of the Drumanard Historic District.

Notably, **Alternative A-15** would directly affect (through property taking) only one historic property, the Swartz Farm Rural Historic District in Indiana, which lies immediately adjacent to the S.R. 265/S.R. 62 interchange and consequently directly in the path of all of the eastern alternatives. Although Alternative A-9 has less physical takings to soils and wildlife habitat resources than **Alternative A-15**, it causes similar impacts to **Alternative A-15** with respect to historic properties. Alternative A-9 passes directly through the Country Estates Historic District and therefore would involve a direct use of a historic property.

Based on the foregoing considerations, **Alternative A-15** provides the overall best balance in avoidance and minimizing harm to community, natural and historic resources among the eastern bridge options. Although **Alternative A-15** is not necessarily the least harmful option with respect to each and every resource category, it provides the best overall balance and opportunity to minimize harm. In particular, the incorporation of a tunnel under the Drumanard estate helps to reduce community disruption and visual, noise and historic property impacts. This conclusion is largely supported by extensive public input received prior to publication of the DEIS, and in the formal public comment period on the DEIS, which concluded on February 25, 2002. While many local residents in the immediate vicinity of the eastern alternatives expressed opposition to

any eastern bridge whatsoever, many also expressed opinions concerning the most desirable eastern alternative in the event that an eastern bridge is to be constructed. A large majority of those comments expressed support for the so-called "Drumanard tunnel alternatives," Alternatives A-13 and **A-15**. For example, in Kentucky, representatives of the city of Prospect expressed strong opposition to Alternatives A-2 and A-16, which would have more severe impacts on that community. Many commenters expressed support for the "out of sight, out of mind" nature of the tunnel on Alternatives A-13 and **A-15**, even though that option still will have substantial effects on neighborhoods such as the Shadow Wood subdivision in Kentucky. Little support was stated for Alternative A-9, which would have had adverse effects on historic properties and also would have similar impacts on streams, wetland, and wildlife habitat. Between the two "tunnel" alternatives, residents in Indiana clearly prefer **Alternative A-15**, which minimizes harm to Utica and avoids the area northeast of Utica that is seeing considerable residential and commercial development. This public input corroborates and supports the determination that **Alternative A-15** is the most preferable option for an eastern bridge route.

Rejection of Alternative B-1

Alternative B-1 was carried forward for evaluation in the DEIS despite considerable early indications that it suffered from such serious flaws that it may not be a reasonable alternative for an eastern Ohio River bridge. The information presented in the DEIS confirmed that this alternative is not preferable, and that a bridge in the Near East corridor is not a desirable or appropriate component of a Two Bridge/Highway solution. Most notably, the improvements to I-264 and I-71 necessary to construct an Ohio River bridge in the Near East Corridor would require approximately 252 residential displacements, approximately 3.5 times as many displacements as the highest Far East alternative. Alternative B-1 also would require approximately 24 commercial displacements, compared with none for **Alternative A-15** and three of the other four Far East alternatives. (Alternative A-9 would require two commercial displacements.) Alternative B-1 also would displace five community resources (e.g., churches, schools, etc.), whereas none of the Far East alternatives would displace any community resources. This alternative also raises environmental justice concerns because the residential area in Indiana on the northwest side of the Ohio River, through which Alternative B-1 would pass, consists of a predominantly low-income and elderly population.

The substantial adverse community impacts of Alternative B-1 are of such a significant magnitude as to outweigh any potential advantages this alternative might have with respect to impacts to the natural environment (such as the lowest wetland and stream impacts). Moreover, Alternative B-1 actually has higher impacts than most of the Far East alternatives with respect to acreage of floodplain encroachment and acreage of prime farmland conversion. Noise impacts are comparable to the other eastern alternatives. The conclusion that Alternative B-1 is not an appropriate solution is reinforced by the Environmental Objection rating given to Alternative B-1 by the USEPA.

Alternative B-1 also poses significant engineering and traffic challenges. Although it could be constructed, the complex interchange required at the junction of I-264, I-71 and the new bridge would pose the risk of a new "Spaghetti Junction" in the LMA. This alternative also would pose

difficult maintenance problems for the KYTC. Representative of local emergency response agencies, including the Harrods Creek Fire Department, expressed strong opposition to this option because of the complex curves and movements associated with the interchange. They stated this is already a high accident location, and that the construction of an Alternative B-1 bridge would exacerbate the problem.

Interchange Options

Interchanges are proposed at three points for the eastern alternative: at U.S. 42 in Kentucky, and at both S.R. 62 and Salem Road in Indiana. Partial interchanges currently exist at U.S. 42 and at S.R. 62, at the current termini of KY 841 and S.R. 265, respectively.

U.S. 42

The Preferred Alternative includes a partial interchange at KY 841 and U.S. 42. The proposed partial diamond interchange at U.S. 42 will allow for the continuation of the movements currently provided at this location (access to and from KY 841 in the direction of I-71), but would not provide access to and from the new bridge/highway in the direction of Indiana. A full interchange (i.e., with movements to/from both Indiana and Kentucky) also was considered at this location in association with **Alternative A-15**. However, construction of that interchange would require a connection at Wolf Pen Branch Road southeast of U.S. 42 and the improvement of Wolf Pen Branch Road to five lanes (from its current two lanes) from the interchange to its intersection with U.S. 42. The expansion of Wolf Pen Branch Road in this location would have substantial impacts on adjoining residential areas and would cause a dramatic increase in traffic on this stretch of road. It also likely would increase development pressure on the undeveloped land along Wolf Pen Branch Road between the new interchange and U.S. 42. Public input from area residents overwhelmingly opposed this full interchange option and supported construction of a partial interchange that would maintain the existing access. Thus, the partial diamond interchange at U.S. 42 has been included in the Preferred Alternative.

Salem Road

The Salem Road interchange option evaluated in the DEIS has been included in the Preferred Alternative. This interchange would serve the west side of the INAAP, which is planned for redevelopment, and also would provide access to the proximate rapidly developing residential area. While this interchange may increase development pressure on adjacent undeveloped properties, it is expected to provide significant benefits in assisting with the redevelopment of the INAAP. A full diamond interchange is proposed at Salem Road.

S.R. 62

The Preferred Alternative includes reconstruction of the S.R. 265/S.R. 62 interchange to connect to the new Ohio River bridge/highway. This interchange will retain the existing direct freeway access to the Clark Maritime Center, which is depicted as Option 1 in Appendix A.2. The DEIS also evaluated the option of discontinuing direct access to the Clark Maritime Center from this interchange, instead providing access via S.R. 62 southwest of the S.R. 265/S.R. 62 interchange. Maintaining direct access to the Clark Maritime Center is preferable to avoid driver confusion, to minimize additional commercial traffic impacts to S.R. 62, and to maximize access to the growing facilities at the maritime center. This interchange reconstruction will include construction of an additional loop ramp in the northwest quadrant of the existing interchange, reconstruction of the northeast quadrant loop ramp, and provision of direct ramps to Port Road immediately east of the loop ramps.

S.4.3 Downtown Alternative

Selection of Alternative C-1

Alternative C-1 provides for construction of a new six lane I-65 bridge to accommodate the I-65 northbound movement. **Alternative C-1** also includes a 17 foot bicycle and pedestrian path on the upstream side of the bridge and terminates at River Road in Kentucky and Court Avenue in Indiana. The existing I-65 Bridge will be used to accommodate the six lane I-65 southbound movement. Thus, the I-65 Preferred Alternative will result in 12 lanes of I-65 capacity over the Ohio River in Downtown Louisville.

In Indiana, the Preferred Alternative provides eight lanes of through-movement capacity: four northbound and four southbound. The four lane I-65 southbound picks up two lanes at 10th Street to carry a total of six lanes onto the bridge from Indiana. Likewise, the six lane northbound **C-1** section coming off the bridge into Indiana drops two lanes at 10th Street.

In Kentucky, I-65 provides six lanes of through-movement south of the Kennedy Interchange: three lanes northbound, and three lanes southbound, to match the existing I-65 six lane section to the south. The six lane I-65 southbound lanes coming off the bridge drop one lane for the I-64 westbound exit, and two lanes for the I-64 eastbound exit. Likewise, the I-65 three lane northbound section picks up one lane from the I-64 westbound entrance, and two lanes from the I-64 eastbound entrance to northbound I-65, to carry a total of six lanes northbound onto the new **C-1** bridge.

Alternative C-1 was selected as the downtown bridge component of the Preferred Alternative based on a number of considerations. The primary considerations in the selection of **Alternative C-1** were traffic impacts, residential displacements, costs, environmental justice concerns and minimization of impacts to public parklands and historic properties.

Alternative C-1 is preferable to Alternative C-2 (the "Ninth Street alternative") for several reasons. Although the combination of a Ninth Street bridge with a bridge in the Far East corridor

would result in a slightly better improvement in total weekday VMT and VHT as compared to a combination of Alternative **C-1** or C-3 with a Far East bridge, construction of Alternative C-2 would result in significantly less improvement in Kennedy Bridge traffic by 2025. For example, the Alternative C-2—Far East combination would result in a demand-to-capacity ratio of 97 percent in 2025, meaning that the Kennedy Bridge would be near capacity again functioning at LOS D in the peak period as it currently is with attendant increased congestion, just 5-10 years after the new downtown bridge opens. Meanwhile, the new Ninth Street (Alternative C-2) bridge would only operate at 52 percent of capacity, suggesting that this bridge would not be an attractive alternative for much of the traffic crossing the Kennedy Bridge. In contrast, the combination of Alternative **C-1**/C-3 and a Far East bridge would result in the Kennedy Bridge (including the new span) performing at 74 percent of capacity in 2025—an improvement of 23 percent of capacity over the Alternative C-2—Far East combination. Similarly, the Alternative C-2—Far East combination would result in LOS D on the Kennedy Bridge in 2025, while the Alternative **C-1**/C-3—Far East combination would result in LOS C. Thus, Alternative **C-1** or C-3 is clearly preferable for providing a long-term solution to capacity and congestion problems on the Kennedy Bridge.

Alternative C-2 was problematic because of the large increase in traffic on Ninth Street (Roy Wilkins Boulevard) in Louisville that would have occurred with this option. Such a connection would divert a large percentage of the traffic desiring access to downtown Louisville from I-65 southbound onto Ninth Street, with resulting negative community impacts. Ninth Street already serves as a barrier to mobility between the Louisville central business district and low-income and minority residential areas immediately to the west. Any alternative that would substantially increase traffic on Ninth Street would pose major environmental justice concerns with respect to increased safety risks for pedestrians, increased noise and visual impacts, further division and disruption to the community, and other potential adverse effects on adjacent residential areas. Serious concerns about the environmental justice impacts of Alternative C-2 were expressed during the public comment period on the DEIS. Because Alternatives **C-1** and C-3 would not provide a new connection to Ninth Street, they would avoid these environmental justice concerns.

Alternative C-2 would have had greater impacts to historic properties and publicly owned parks and recreation areas than either Alternative **C-1** or C-3. Alternative C-2 also raised greater Ohio River navigation clearance issues associated with bridge construction than either Alternative **C-1** or C-3. Alternative C-2 also would cost approximately $180 million more than either Alternative **C-1** or C-3. For the foregoing reasons, especially related to traffic impacts, environmental justice concerns, historic property and parkland impacts and costs, either Alternative **C-1** or C-3 are preferable to Alternative C-2.

The primary differentiating elements between Alternatives **C-1** and C-3 are residential and commercial property displacements. Both perform comparably with respect to traffic operations, and generally have comparable, and relatively limited, impacts with respect to the natural environment. **Alternative C-1** would require taking relatively few residences (23), 157 fewer than required for Alternative C-3 (180), primarily as a result of the requirement to take the Harbors condominium building along Alternative C-3. **Alternative C-1** also would require 45

fewer commercial takings than Alternative C-3 (30 vs. 75). These significant differences in impacts demonstrate that **Alternative C-1** overall would have significantly fewer adverse community impacts than Alternative C-3.

Alternative C-1 would have a greater impact on historic properties than Alternative C-3, as a result of the use of approximately 3.0 acres from the Old Jeffersonville Historic District, including the taking of five contributing structures. Alternative C-3 would not require any taking from the Old Jeffersonville Historic District. On the other hand, Alternative C-3 would have a greater impact on public parklands, requiring the taking of 2.8 acres from Waterfront Park in Kentucky. This alternative, with a bridge immediately downstream of the existing Kennedy Bridge, would affect actively used portions of the existing park, displacing the lowland picnic area and portions of the "linear park" element already in place. It also would move the freeway ramps and structures significantly closer to the children's play area, restrooms, and parking facilities at Waterfront Park. While **Alternative C-1** also would require the taking of 1.2 acres from Waterfront Park, the area affected by this alternative was leased for use as an asphalt distribution facility. These terminal operations ceased in December 2002; the Waterfront Development Corporation has acquired the property. With the decommissioning of the facility, the development of this area as parkland will not occur until environmental investigation and remediation of the site has taken place (likely requiring at least 18 months). Moreover, the Waterfront Development Corporation, the public agency that oversees the Waterfront Park, has indicated that it prefers that any new bridge be located in **Alternative C-1**, as opposed to Alternative C-3, and has planned to construct any new park facilities immediately upstream of the existing Kennedy Bridge to accommodate the construction of a new Ohio River bridge.

Based on the foregoing, **Alternative C-1** has been selected as the Downtown Corridor component of the Preferred Alternative. **Alternative C-1** is preferable to Alternative C-2 with respect to traffic, environmental justice concerns, historic property and parkland impacts, and costs. **Alternative C-1** is preferable to Alternative C-3. On balance, the impacts of these two alternatives on historic properties and public parklands and recreation areas generally offset each other. In that case, the dramatic differences in residential and commercial displacements, and the consequent community impacts, make **Alternative C-1** preferable to Alternative C-3.

S.4.4 Kennedy Interchange Reconstruction

The Preferred Alternative includes the relocation of the Kennedy Interchange just to the south of its existing location. This alternative was selected over the option of in-place reconstruction of the Kennedy Interchange. The Preferred Alternative also includes the reconstruction of the Mellwood/Story Avenue interchange on I-64, and construction of a partial interchange at Frankfort Avenue/Ohio Street on I-71. Connection to the existing city street network is provided through the reconstruction of Witherspoon at Preston Street and continuing to Frankfort Avenue/Ohio Street opposite the partial interchange at I-71.

Selection of Kennedy Interchange Relocation

The relocation of the Kennedy Interchange to the south of its current location (referred to here as the "Kennedy Interchange Relocation") was selected as part of the Preferred Alternative primarily based on its ability to provide better traffic operations than the in-place reconstruction option. Relocation of the interchange would allow for elimination of the numerous left-hand entrances and exits, difficult weaves, and conflict points that are part of the current Kennedy Interchange, and which have led the interchange to be known commonly as "Spaghetti Junction." Currently, I-64 through traffic—which is not destined for downtown Louisville—must merge and weave with downtown oriented I-65 and I-71 traffic. The Kennedy Interchange Relocation would allow I-64 through-traffic to pass through the interchange without encountering the numerous difficult merge and conflict points in the current interchange. All merging and diverging activities would take place on collector-distributor roads, away from mainline traffic, where they would not interfere with the smooth flow of traffic through the interchange. These improvements will help to reduce congestion and improve safety in the Kennedy Interchange, by reducing the number of "conflict points" where crashes are more likely to occur. As indicated in Section 3.6.3, a reduction of crash rates of one third to one half could reasonably be expected because of the reduction of left hand entrances and exits in the interchange. The Relocation Option would provide for the direct routing of I-64 through-traffic and have better geometric design features than the In-place option, (although the In-place option would meet current design standards). The relocated interchange would have a longer functional service life than the in-place option because of better design geometric features.

The In-place reconstruction of the Kennedy Interchange would require maintenance of traffic operations while construction proceeded, a complete reconstruction of the Kennedy Interchange in-place would not be feasible. This would adversely affect route continuity for I-64 through-traffic and contribute to additional congestion and safety problems throughout the construction period. As a result, by 2025, average peak hour speeds in the Kennedy Interchange would be less than under the Kennedy Interchange Relocation option. This significant decrease in the efficiency of the Kennedy Interchange would result in significantly greater congestion and delays, which would likely spill over onto adjacent roadways, including the Kennedy Bridge. Thus, while providing some short-term benefit, the in-place reconstruction of the Kennedy Interchange would not provide for a long-term solution such as that with the Relocated Interchange Option.

Relocation of the Kennedy Interchange would move the interchange closer to the Butchertown neighborhood, which is a historic district listed on the NRHP. Plans for the Kennedy Interchange Relocation included in the DEIS indicated that this option would take approximately 1.3 acres from the Butchertown Historic District, including six contributing structures in the northeast corner of the District. However, additional refinements made during the preparation of the FEIS eliminated takings of these six structures. Thus, the impacts of the two Kennedy Interchange reconstruction options on the Butchertown Historic District would be very similar, with only an additional 0.06 acre of impact for the Kennedy Interchange Relocation option in a junkyard area with no contributing resources. Nevertheless, the Kennedy Interchange Relocation option would bring the interchange closer to and encroach on the Butchertown neighborhood. It

would require 20 more commercial displacements (50) than the in-place reconstruction option (30). However, the existing Kennedy Interchange already impacts the Butchertown neighborhood with visual, noise and lighting effects, and the effects from the relocated interchange would not be significantly different. The design of the relocated interchange, through the use of fills for outer roadways in the interchange may serve as berms to buffer. Moreover, the Kennedy Interchange Relocation would free 40 to 45 acres of land along the riverfront (the Kennedy Interchange's current location). The amount to be transferred for public use is dependent on the design. This land will be conveyed for public use to the Waterfront Development Corporation through the Louisville-Jefferson County Metro Government by the Commonwealth of Kentucky.

Interchange Options

Two new or reconstructed interchanges in the downtown LMA are included in the Preferred Alternative as part of the Kennedy Interchange Reconstruction. A new partial interchange at Frankfort Avenue/Ohio Street on I-71 would provide for better access to eastern portions of downtown Louisville and would serve as an additional diversion point in the event of congestion or incidents. A reconstructed Mellwood/Story Avenue interchange on I-64 would provide better access for traffic exiting from I-64 westbound onto Mellwood Avenue.

(I-71) Frankfort Avenue/Ohio Street

The Preferred Alternative also includes a partial interchange at I-71 where it crosses Frankfort Avenue/Ohio Street. This partial diamond interchange would include an off-ramp for I-71 southbound traffic and an on-ramp for I-71 northbound traffic. The ramps would be coupled to the west with an easterly one-mile extension of Witherspoon Street from its current terminus to Frankfort Avenue/Ohio Street. A four-lane divided roadway would be placed along the southern edge of the relocated Kennedy Interchange, with north-south street connections to River Road at Shelby Street and Campbell Street. Traffic oriented toward the Medical Center Complex, Butchertown, or other eastern portions of downtown Louisville currently must proceed to downtown Louisville on I-71. There are no interchanges on I-71 between Zorn Avenue and I-64 or I-65 in the Kennedy Interchange in downtown Louisville—a distance of 2.7 miles. Construction of a partial interchange on I-71 at Frankfort Avenue/Ohio Street and the extension of Witherspoon Street would provide an alternate access route to and from these eastern portions of downtown Louisville. It also would provide an additional point of diversion from I-71 in the event of congestion or incidents on I-71 or in the Kennedy Interchange. (See Appendix A.7)

(I-64) Mellwood/Story Avenue

As part of the Preferred Alternative, a new roadway would be constructed between Mellwood and Story Avenues along the northeast side of I-64. This roadway, which would bridge Beargrass Creek, would allow westbound I-64 traffic exiting at Mellwood Avenue to access Story Avenue more directly, in order to reach destinations in Butchertown or the Medical Center Complex environs. Currently, this traffic must travel a circuitous route, via Frankfort Avenue, to reach Story Avenue. This new roadway, which would not require any residential or commercial

displacements or have any other significant effects on the environment, would eliminate this undesirable traffic movement and reduce demand on Frankfort Avenue between Mellwood and Story avenues. (See Appendix A.8)

S.5 Areas of Controversy

Throughout the LMA, strongly held and often-conflicting opinions have been expressed about whether to build one or two bridges. Some residents say both bridges are badly needed while others argue, that a bridge in eastern Jefferson County is not needed. Still others disapprove of any bridge and advocate a light rail cross-river option. A common concern is about which bridge to build first, if two are to be built. Many believe there will be inadequate funding to build both.

Some argue that bridge options for the Downtown area and the East End should be considered in separate Environmental Impact Statements. They say that the two locations are not related, but are two distinctively different projects. Others, however, believe they are related and that if a bridge is built to the east that it will impact the Downtown area. Therefore, the impacts need to be considered in one EIS.

One position voiced is that traffic safety and congestion, especially in the Kennedy Interchange (Spaghetti Junction), underscore the need for downtown improvements to be the top priority. An East End bridge, they argue, would be a “sprawl” bridge and ruin the scenic, pastoral setting along the river and lead to unwanted development. Those favoring an East End bridge believe that a cross-river outer beltway in eastern Clark and Jefferson Counties is long overdue to accommodate growth and to provide access to residents and to commercial traffic that now is routed through downtown. There also is controversy over the specific bridge option locations both Downtown and in the East End. Land use, interchange locations, traffic and noise are among key concerns by residents near the proposed alternatives.

S.6 Unresolved Issues With Other Agencies

Per 40 CFR 93.107, KIPDA will need to amend the 2025 RMP to reflect the FEIS Preferred Alternative "design concept and scope" and updated project cost estimate prior to process completion (FHWA approval of the ROD). The current KIPDA RMP reflects the ORMIS 4-lane recommendation for the I-265 outer beltway between I-71 in Kentucky, and SR 62 in Indiana. The 4-lane I-265 configuration resulted in an unacceptable LOS D, and so the Preferred Alternative provides for a 6-lane section. Provision of 3-lanes in each direction results in the desired LOS C in the 2025 design year.

The Louisville Bridges cost estimate in the KIPDA 2025 RMP is $868 million ($700 million from Kentucky, and $168 million from Indiana). Based on extensive analysis in preparing the FEIS, and the March 18-19, 2003 Cost Estimate Review, which incorporated contingencies for the unknown, the final FEIS baseline cost estimate is $1.936 billion (2003 dollars, $1.312 billion from Kentucky, and $0.623 billion from Indiana). The Financing Options document (available for viewing at the local project office) demonstrates that the respective states have a reasonable financing strategy to implement the project. Once KIPDA has amended their 2025 RMP,

demonstrated fiscal constraint and conformity, and FHWA/FTA have issued the conformity finding, the FHWA will be able to approve the ROD. This issue must be addressed prior to issuance of the ROD.

S.7 Permits Required

The following Federal permits will be required for the Preferred Alternative:

Agency	Permit
USACE	Section 404 Permit for Discharge of Dredged or Fill Material into waters of the United States
USACE	Construction, Dumping and Dredging Permit (Section 10)
U.S. Coast Guard	Bridge Permit (Section 9)
U.S. Federal Aviation Administration	FAA Form 7460-1 Notice of Proposed Construction or Alteration

The following Indiana State permits relating to terrestrial and aquatic resources will be required for the Preferred Alternative:

Agency	Permit
IDEM	Section 401 Water Quality Certification
IDEM	National Pollution Discharge Elimination System, Rule 5
IDNR	Construction in a Floodway Permit

The following Kentucky State permits relating to terrestrial and aquatic resources will be required for the Preferred Alternative:

Agency	Permit
NREPC, Division of Water	Floodplain Construction Permit
NREPC, Division of Water	Section 401 Water Quality Certification
NREPC, Division of Water	National Pollution Discharge Elimination System, Rule 5